

REMARKS

This Amendment is in response to the Office Action dated March 26, 2007. In the Office Action claims 11-15 and 24-27 were rejected under 35 USC §101, and claims 1, 6, 11 and 15 were rejected under 35 USC §103. By this Amendment, claims 1, 5, 6, 10, and 12 are amended, and claim 4 is cancelled. Currently pending claims 1-3 and 5-18 are believed allowable, with claims 1, 10 and 12 being independent claims.

CLAIM REJECTIONS UNDER 35 USC §101:

Claims 1-10 and 16-20 were rejected under 35 U.S.C. § 101 as allegedly directed to non-statutory subject matter. The Office Action argues, "the methods and systems claimed consist solely of mathematical operations without some practical application."

By this amendment, claims 1-10 and 16-20 claim generating speech recognition models. The claims recite a practical application for the claim elements. Therefore, claims 1-10 and 16-20 claims are directed to statutory subject matter and are believed to overcome the rejections under 35 U.S.C. § 101.

Claims 12-15 and 25-27 are dependent on and further limit claims 11 or 24. Since claims 11 and 24 are believed to be directed to statutory subject matter, claims 12-15 and 25-27 are likewise believed to be directed to statutory subject matter.

CLAIM REJECTIONS UNDER 35 USC §103:

Claims 1, 6, 11 and 15 were rejected as obvious under 35 USC §103 over U.S. Patent No. 6,567,776 issued to Chang et al. ("Chang") in view of U.S. Patent No. 6,578,032 issued to Chandrasekar et al. ("Chandrasekar").

Claims 2-4, 7-9 and 12-14 are rejected as obvious over Chang, Chandrasekar and U.S. Patent No. 6,529,902 issued to Kanevsky et al. ("Kanevsky").

Claims 5, 10 and 15 are rejected as obvious over Chang, Chandrasekar and U.S. Patent Publication No. 2003/0231775 to Wark ("Wark").

Claims 17-19, 21-23 and 24-26 are rejected as obvious over Wark in view of U.S. Patent Publication No. 2002/0174086 to Verma et al. ("Verma").

Finally, claims 20 and 27 stand rejected as obvious over Wark in view of Verma and U.S. Patent Publication No. 2005/0251390 to Catchpole ("Catchpole").

A *prima facie* case for obviousness can only be made if the combined reference documents teach or suggest all the claim limitations. MPEP 2143. Furthermore, to establish a *prima facie* case of obviousness, there must be some suggestion or motivation to modify the reference or to combine reference teachings. MPEP 2143.

Claim 1

Claim 1 currently recites generating speech recognition models by receiving a first speech recognition model based on a first set of recorded phonemes training data and a second speech recognition model based on a second set of recorded phonemes training data. The first set of recorded phonemes training data originating from a plurality of female speakers. The second set of recorded phonemes training data originating from a plurality of male speakers. A gender-independent speech recognition model is created based on the first set of recorded phonemes training data and the second set of recorded phonemes training data if the difference in model information is insignificant. Support for the amendments to claim 1 can be found at least at page 3, line 27 through page 4, line 27 of the present application.

The Applicants submit that claim 1 is not anticipated or obvious over the documents of record. For example, none of the references teach or suggest "creating a gender-independent speech recognition model based on the first set of recorded phonemes training data and the second set of recorded phonemes training data if the difference in model information is insignificant."

For at least these reasons, claim 1 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 1.

Claims 2-5

Claims 2-5 and further limit claim 1. Since claim 1 is believed allowable over the cited documents, claims 2-5 are also believed allowable for at least the same reasons as claim 1.

Claim 6

Claim 6 is amended herein to recite a system for generating speech recognition models. Support for the amendments to claim 6 can be found at least at page 3, line 27 through page 4, line 27 of the present application.

Claim 6 recites, in part, "a processing module configured to create an independent speech recognition model based on the first set of training data and

the second set of training data if the difference in model information between first speech recognition model and the second speech recognition model is insignificant." The Applicants submit the rejection of claim 6 is overcome since none of the references teach or suggest the above limitations.

For at least these reasons, claim 6 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 6.

Claims 7-10

Claims 7-10 and further limit claim 6. Since claim 6 is believed allowable over the cited documents, claims 7-10 are also believed allowable for at least the same reasons as claim 6.

Claim 11

Claim 11 is amended herein to recite computer readable program codes coupled to the computer memory for generating speech recognition models. Support for the amendments to claim 11 can be found at least at page 3, line 27 through page 4, line 27 of the present application.

Claim 11 recites, in part, "program codes configured to cause the program to . . . create an independent speech recognition model based on the first set of training data and the second set of training data if the difference in model information is insignificant." The Applicants submit the rejection of claim 11 is overcome since none of the references teach or suggest the above limitations.

For at least these reasons, claim 11 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 11.

Claims 12-15

Claims 12-15 and further limit claim 11. Since claim 11 is believed allowable over the cited documents, claims 12-15 are also believed allowable for at least the same reasons as claim 11.

Claim 16

Claim 16 is amended herein to recite a system for generating speech recognition models. Support for the amendments to claim 16 can be found at least at page 3, line 27 through page 4, line 27 of the present application.

Claim 6 recites, in part, "means for creating an independent speech recognition model based on the first set of training data and the second set of

training data if the difference in model information between first speech recognition model and the second speech recognition model is insignificant." The Applicants submit the rejection of claim 16 is overcome since none of the references teach or suggest the above limitations.

For at least these reasons, claim 16 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 16.

Claim 17

Claim 17 is amended herein to recite a method for recognizing speech from an audio stream originating from one of a plurality of data classes. Support for the amendments to claim 17 can be found at least at page 12, line 3 through page 13, line 25 of the present application.

Claim 17 recites, in part, "wherein the plurality of data classes include a female speech recognition model based on recorded phonemes originating from plurality of female speakers, a male speech recognition model based on recorded phonemes originating from plurality of male speakers, and a gender-independent speech recognition model based on recorded phonemes originating from plurality of both female and male speakers having insignificant differences in information." The Applicants submit the rejection of claim 17 is overcome since none of the references teach or suggest the above limitations.

For at least these reasons, claim 17 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 17.

Claims 18-20

Claims 18-20 further limit claim 17. Since claim 17 is believed allowable over the cited documents, claims 18-20 are also believed allowable for at least the same reasons as claim 17.

Claims 19

Claim 19 is dependent on claim 17 and recites, "The method of claim 17, wherein computing the accumulated confidence level further comprising weighing the current vector probability more than the previous vector probabilities." In rejecting claim 19, the Office Action argues paragraphs [0018], [0019] and [0022] of Verma disclose weighing a current vector probability more than previous vector probabilities. The Applicants respectfully disagree with the Examiner.

Paragraphs [0018] and [0019] of Verma disclose L-statistic definition for a particular sample j , as $L_{ij} = a_1 l_{ij1} + a_2 l_{ij2} + \dots + a_n l_{ijn}$, where l^{ijk} denotes for sample j and classifier i , the log-likelihood of the k th most likely class is such that the l_{ijk} s form order statistic, that is $l_{ij1} > l_{ij2} > \dots > l_{ijn}$. The paragraphs also mention a preferred order statistic used is simply the difference between the log-likelihoods of the two most likely classes k . That is, $a_1 = 1$, $a_2 = -1$ and all other $a_i = 0$.

Paragraph [0022] simply states, "Overall confidence for classifier i , H_i , is computed as cumulative mean or moving average of the L-statistic L_{ij} over a number of samples j after which it becomes almost constant."

Thus, the Applicants respectfully submit there is no teaching or suggestion in Verma of weighing a current vector probability more than previous vector probabilities.

For at least this reason, and the reasons given for claim 17, claim 19 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 19.

Claim 21

Claim 21 is amended herein to recite a system for recognizing speech data from an audio stream originating from one of a plurality of data classes. Support for the amendments to claim 21 can be found at least at page 12, line 3 through page 13, line 25 of the present application.

Claim 21 recites, in part, "wherein the plurality of data classes include a first speech recognition model based on recorded phonemes originating from a first set of speakers, a second speech recognition model based on recorded phonemes from a second set of speakers, and a third speech recognition model based on recorded phonemes originating from both the first and second set of speakers having insignificant differences in information." The Applicants submit the rejection of claim 21 is overcome since none of the references teach or suggest the above limitations.

For at least these reasons, claim 21 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 21.

Claim 22

Claim 22 further limits claim 21. Since claim 21 is believed allowable over the cited documents, claim 22 is also believed allowable for at least the same reasons as claim 21.

Claims 23

Claim 23 is dependent on claim 21 and recites, "The system of claim 21, wherein the second computing module is further configured to weigh the current vector probability more than the previous vector probabilities." In rejecting claim 23, the Office Action argues paragraphs [0018], [0019] and [0022] of Verma disclose weighing a current vector probability more than previous vector probabilities. The Applicants respectfully disagree with the Examiner.

Paragraphs [0018] and [0019] of Verma disclose L-statistic definition for a particular sample j , as $L_{ij} = a_1 l_{ij1} + a_2 l_{ij2} + \dots + a_n l_{ijn}$, where l^{ijk} denotes for sample j and classifier i , the log-likelihood of the k th most likely class is such that the l_{ijk} s form order statistic, that is $l_{ij1} > l_{ij2} > \dots > l_{ijn}$. The paragraphs also mention a preferred order statistic used is simply the difference between the log-likelihoods of the two most likely classes k . That is, $a_1=1$, $a_2=-1$ and all other $a_s=0$.

Paragraph [0022] simply states, "Overall confidence for classifier i , H_i , is computed as cumulative mean or moving average of the L-statistic L_{ij} over a number of samples j after which it becomes almost constant."

Thus, the Applicants respectfully submit there is no teaching or suggestion in Verma of weighing a current vector probability more than previous vector probabilities.

For at least this reason, and the reasons given for claim 21, claim 23 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 23.

Claim 24

Claim 24 is amended herein to recite computer readable program codes coupled to the computer memory for recognizing speech data from an audio stream originating from one of a plurality of data classes. Support for the amendments to claim 24 can be found at least at page 12, line 3 through page 13, line 25 of the present application.

Claim 24 recites, in part, "wherein the plurality of data classes include a first speech recognition model based on recorded phonemes originating from a first set of speakers, a second speech recognition model based on recorded phonemes from a second set of speakers, and a third speech recognition model based on recorded phonemes originating from both the first and second set of speakers having insignificant differences in information." The Applicants submit the rejection of claim 24 is overcome since none of the references teach or suggest the above limitations.

For at least these reasons, claim 24 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 24.

Claims 25 and 27

Claims 25 and 27 further limit claim 24. Since claim 24 is believed allowable over the cited documents, claims 25 and 27 are also believed allowable for at least the same reasons as claim 24.

Claims 26

Claim 26 is dependent on claim 24 and recites, "The computer program product of claim 24, wherein the program code configured to compute the accumulated confidence level includes program code configured to weigh the current vector probability more than the previous vector probabilities." In rejecting claim 26, the Office Action argues paragraphs [0018], [0019] and [0022] of Verma disclose weighing a current vector probability more than previous vector probabilities. The Applicants respectfully disagree with the Examiner.

Paragraphs [0018] and [0019] of Verma disclose L-statistic definition for a particular sample j , as $L_{ij} = a_1 l_{ij1} + a_2 l_{ij2} + \dots + a_n l_{ijn}$, where l^{ijk} denotes for sample j and classifier i , the log-likelihood of the k th most likely class is such that the l_{ijk} s form order statistic, that is $l_{ij1} > l_{ij2} > \dots > l_{ijn}$. The paragraphs also mention a preferred order statistic used is simply the difference between the log-likelihoods of the two most likely classes k . That is, $a_1=1$, $a_2=-1$ and all other $a_s=0$.

Paragraph [0022] simply states, "Overall confidence for classifier i , H_i , is computed as cumulative mean or moving average of the L-statistic L_{ij} over a number of samples j after which it becomes almost constant."

Thus, the Applicants respectfully submit there is no teaching or suggestion in Verma of weighing a current vector probability more than previous vector probabilities.

For at least this reason, and the reasons given for claim 24, claim 26 is believed allowable over the cited art. The Applicants respectfully request reconsideration and allowance of claim 26.

CONCLUSION

In view of the forgoing remarks, it is respectfully submitted that this case is now in condition for allowance and such action is respectfully requested. If any points remain at issue that the Examiner feels could best be resolved by a telephone interview, the Examiner is urged to contact the attorney below.

No fee is believed due with this Amendment, however, should a fee be required please charge Deposit Account 50-0510. Should any extensions of time be required, please consider this a petition thereof and charge Deposit Account 50-0510 the required fee.

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Respectfully submitted,

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